Texas Space Grant Consortium (TSGC)
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PROGRAM DESCRIPTION

The National Space Grant College and Fellowship Program consists of 52 state-based, university-led Space Grant Consortia in each of the 50 states plus the District of Columbia and the Commonwealth of Puerto Rico. Annually, each consortium receives funds to develop and implement student fellowships and scholarships programs; interdisciplinary space-related research infrastructure, education, and public service programs; and cooperative initiatives with industry, research laboratories, and state, local, and other governments. Space Grant operates at the intersection of NASA's interest as implemented by alignment with the Mission Directorates and the state's interests. Although it is primarily a higher education program, Space Grant programs encompass the entire length of the education pipeline, including elementary/secondary and informal education. The Texas Space Grant Consortium is a Designated consortium funded at a level of **$845,000** for fiscal year 2010. The Texas Space Grant Consortium has effectively administered and operated programs since 1989. The TSGC member currently includes 47 academic, government, industrial and non-profit affiliates listed below.

PROGRAM GOALS

The TSGC strategic goals align with NASA's Educational Outcomes. Our goals and programs serve multiple constituencies with emphases on customer focus, NASA-related content, the STEM (Science, Technology, Engineering and Math) pipeline, increased diversity, effective evaluation of programs, the development of partnerships, and program sustainability. TSGC goals are summarized below.

NASA Outcome 1

TSGC Goal A: Increase and Enhance Minority / Underserved Participation in our programs: TSGC has a primary focus on increasing the number of females and minorities in its programs and increase quantity and quality of female and underrepresented minorities in our programs.

TSGC Goal B: Fellowship and Scholarships and Longitudinal Tracking: This ongoing program recognizes and provides funds to high achieving STEM students who have strong interests in STEM and space related careers/fields and encourages effective student research and mentoring. Tracking continues to highlight student successes and achievements.

TSGC Goal C: Workforce Development and Higher Education: Design Challenge. This ongoing program matches design problems specified by NASA JSC engineering

personnel with capstone engineering design classes at our affiliates. On average, twenty design teams per year are involved in this program.

TSGC Goal D: Research Infrastructure: New Investigators Program (TSGC NIP). This ongoing program is designed to assist new faculty members or researchers at our affiliates in the initiation of research aligned with NASA's strategic plan.

NASA Outcome 2

TSGC Goal E: Precollege and K-12: In this area, we aim to empower Texas educators, students, and the general public to understand and appreciate the benefits of space exploration and space based research and to inspire and motivate students at all levels to pursue careers in STEM fields. Our strategy focuses on enhancing K-12 educator knowledge in STEM disciplines and increase underrepresented and underserved participation.

NASA Outcome 3

TSGC Goal F: General public, informal education and public awareness: We continue to support informal education in the state by partnering and collaborating with various state organizations to enhance STEM learning and career exploration.

TSGC Goal G: Internal management: We continue to focus on management efficiency and effectiveness, and will update our strategic plan and goals to ensure clear alignment with NASA strategic goals.

PROGRAM/PROJECT BENEFIT TO OUTCOME (1,2, OR 3)

NASA Outcome 1

TSGC Goal B: Fellowship, Scholarships and Longitudinal Tracking: To demonstrate the impact of the Fellowship and Scholarship programs, we provide quotes from 2010 participants.

"Being a part of the Texas Space Grant Consortium has provided opportunities on several different levels. I adjunct science education courses and several of my students in the last few years have benefitted through the scholarship program for undergraduates. Personally, the financial assistance has been not only helpful but appreciated. More importantly the opportunity to network with other professionals with common business and educational interests has been very rewarding. I have had the opportunity to visit businesses associated with the aerospace industry that would not have been possible otherwise." (Cheri Davis 2010 TSGC Graduate Fellowship)

"I published a first-author paper in the Journal of Biological Chemistry based on my research performed under NASA/TX Space Grant funding. I hope to finish my PhD within the year, with enough data to write another manuscript. I am currently looking for postdoctoral positions." (Isadora Daniels, 2007 TSGC Graduate Fellowship Program-UTHSCH, 2008 TSGC Graduate Fellowship Program-UTHSC Houston, 2009-2010 TSGC Graduate Fellowship Program-UH Downtown)

TSGC Goal C: Workforce Development and Higher Education: TSGC's flagship Higher Education program is the Design Challenge. The day-long Design Showcase has become a regular "highlight" for JSC/USRA Career Exploration Program students each semester.

"The Texas Space Grant Consortium's Design Challenge is one of the finest programs in the country for engineering students because it gives them the opportunity to work directly with NASA mentors on projects that are not only of interest and significance to the space program, but also challenging and instructive for the student participants. Our students get an opportunity to apply the complex engineering skills that they have learned in the classroom while being required to use teamwork and project management techniques to get the job done in a timely and efficient manner." Dr. Harley Myler, Chairman, Department of Electrical & Computer Engineering, Lamar University

NASA Education Priority - Summer opportunities for secondary students on college campuses with the objective of increased enrollment in STEM disciplines or interest in STEM careers. Summer Internship Program - In the summer of 2010, 12 high school students and 3 teachers worked on four NASA missions to conduct research, field investigations, and data analysis during a 6 week summer internship managed by TSGC. Each student has an expressed interest in pursuing STEM as a career.

"I am excited to share with you that I have successfully completed my first semester of college at Prairie View A&M University's College of Engineering. I finished a challenging fall semester with a GPA of 3.13 that included courses such as an introduction to electrical engineering, computer applications (C++), and an honors course in calculus. Next semester I will be taking Calculus II, Chemistry, Physics I, Technical Writing, Physics Lab, and a Calculus II lab. I am very excited about school starting back up again for the spring semester." Student internship participant

"I just wanted to personally thank you for the internship at CSR. I enjoyed every moment of it! I am majoring in Astronomy. On top of that, you inspired me to do a little bit of my own public outreach. I've decided to get involved in the astronomy community to go out to organizations and schools to inform people about astronomy. This February will be my first presentation!" Student internship participant

NASA Outcome 2 and NASA Education Priority Engage middle school teachers in hands-on curriculum enhancement capabilities through exposure to NASA scientific and technical expertise. Capabilities for teachers to provide authentic, hands-on middle school student experiences in science and engineering disciplines Our flagship K-12 program, the *LiftOff* Summer Institute continues to impact teachers all over the state and Nation. Below are quotes from 2010 educators who participated in *LiftOff* hosted at JSC.

"As a teacher that puts my soul into my teaching, any bit of true appreciation for education implementation lifts my heart and inspires me to continue to do my best for all students. The implementation & continuation of the LiftOff program is the best way to demonstrate appreciation for educators. As well, the wealth of information from both the program and the other educators is immeasurable. It was an "out of this world" experience!!" Liftoff Teacher Participant

"The best feature of the program was the overall value including the exposure to NASA resources that are available through website and the exposure to activities that can supplement student learning in classrooms with diverse student demographics and ability levels." Liftoff Teacher Participant

PROGRAM ACCOMPLISHMENTS TO OUTCOME 1, 2, 3 AND NASA 2010 EDUCATION PRIORITIES:

Outcome 1*: (Employ and Educate)*

NASA Education Priority : - Diversity of institutions, faculty, and student participants. ***TSGC Goal A – Minority and Underserved Participation enhancement***: TSGC has 47 affiliates, 37 of which are academic institutions. Of these 37 academic institutions, 17 are MSIs and 4 are community colleges. We currently have membership applications pending from a fifth community college, the Texas Medical Center, and a nonprofit organization (GirlStart). We are currently working to increase involvement of two MSIs that have inactive representatives. We have exceeded our target of 75% active affiliates overall (85% of affiliates are active).

Our Minority Serving Institutions Activities Council (MSIAC) has become more active. The chair of the MSIAC recently represented the consortium at the ***NASA Innovations in Global Climate Change Education Symposium*** in Austin when the TSGC director was out of the country on an accreditation team. The TSGC director is currently visiting MSI campuses as part of our program to increase minority student interest in STEM disciplines and to get MSI faculty more involved in TSGC activities. These visits involve meetings with university officials, presentations to STEM faculty, and presentations to students.

In an effort to enhance MSI and minority student participation, we have allocated $50K for a Minority Serving Institution Program Development and Collaboration Enhancement Competition. Our 17 MSI affiliates are currently submitting proposals in response to this funding opportunity. MSIs are also eligible for all other consortium programs.

TSGC Goal B - Fellowship and Scholarships and Longitudinal Tracking:

TSGC Graduate Fellowships: TSGC annually awards 20 to 30 $5000 graduate fellowships as supplements to local funding. We award no more than three fellowships to students at any one TSGC affiliate in a given year. A three person committee (two members from MSIs) ranks the applicants and selects the recipients each year. In 2010

we received 142 online applications and awarded 28 fellowships (11 females, 17 males) (5 minorities, 22 Caucasian, 1 Pacific Islander).

TSGC STEM Scholarships: 220 applications were started online, 56 were complete and reviewed. We awarded 21 STEM Scholarships at $1500 each. Eight of the recipients were from MSIs and seven identified themselves as minorities (9 females, 12 males).

TSGC Educator STEM Scholarship: This pilot $1000 Scholarship program was developed for in-service educators who are enrolled in a STEM discipline at one of affiliates. We received 23 applications and 2 scholarships were awarded (1 female, 1 male - both Caucasian).

Columbia Crew Memorial Scholarship program: 231 applications were started online and 68 were completed and reviewed. We awarded 30 scholarships at $1000 each. (15 female, 15 male) (13 minorities, 12 Caucasian, 2 other, 3 unknown)

We provided NASA Academy stipends (4 students at a level of $5,000 each, and smaller design scholarship stipends to outstanding students in our design challenge program. We also supported four students attending the summer academies at the various NASA centers. Overall, we awarded more than $235,000 in Fellowship and Scholarship funds to 97 directly funded students.

NASA 2010 Education Priority - Authentic, hands-on student experiences in science and engineering disciplines – the incorporation of active participation by students in hands-on learning or practice with experiences rooted in NASA-related, STEM-focused questions and issues; the incorporation of real-life problem-solving and needs as the context for activities. ***TSGC Goal C- Workforce Development and Higher Education:*** TSGC's flagship Higher Education program is the TSGC Design Challenge matches undergraduate student design teams from TSGC member institutions with real-world space related design projects provided by the NASA community. The program supports NASA related research activities through student projects, facilitates mentor relationships between students, faculty and the NASA community, develops interdisciplinary space related courses and curricula, and develops space related introductory courses for undergraduate students not majoring in scientific or technological disciplines. During 2010-2011, 20 teams (72 students) participated; the program was integrated into the engineering curriculum at 7 TSGC institutions. During FY 2010-2011, 72 students participated in the Design Challenge (4 female, 68 male) (11 minorities, 52 Caucasian, 9 other).

Higher Education Proposal Opportunities: TSGC supports two to three smaller higher education improvement projects each year and provides supplemental funding for student teams flying experiments on NASA's microgravity aircraft, Rocketry groups, or opportunities for Space Shuttle Student experiments. In 2010, 3 new higher education projects from faculty and staff at affiliates were supported at $15K each and were matched with $15K from their home institutions **(1) UT Health Science Center, Houston** "*Building a Microgravity Simulator for Engineering bone-forming Cartilage*

without Mechanical Stimulation"(1 Female, Caucasian) **. (2) Bob Bullock Texas State History Museum**, "*Tango Alpha Charlie: Texas Aviation Celebration Educational Programs"* (1 Female Caucasian), and **(3) UT Arlington**, *"Interdisciplinary Senior/Graduate Level Course in Multifunctional Smart Composite Space Structures*"(1 Male, Caucasian).

NASA 2010 Education Priority - Summer opportunities for secondary students on college campuses with the objective of increased enrollment in STEM disciplines or interest in STEM careers. And Authentic, hands-on student experiences in science and engineering disciplines – the incorporation of active participation by students in hands-on learning or practice with experiences rooted in NASA-related, STEM-focused questions and issues; the incorporation of real-life problem-solving and needs as the context for activities.

Ignite Systems Go Program: Two inner city Houston high school teams (one all-male, one all-female) who designed and built hybrid rockets, were funded in summer 2010 to travel to Fredericksburg, TX to launch their rockets as part of the Ignite program founded by Fredericksburg High School teacher, Brett Williams. The program goals are to promote engineering studies through research, to develop work force skills, and to encourage high school students to enter STEM fields. The teams were from Eastwood Academy in Houston (12 female, 12 male) (24 Hispanic).

NASA 2010 Education Priority Community Colleges – develop new relationships as well as sustain and strengthen existing institutional relationships with community colleges. The Student Spaceflight Experiments Program (SSEP): In 2010 TSGC supported a student team from El Paso Community College. This program immerses students within a local community in an exciting, high profile science competition in which spaceflight experiments are designed and owned by the students. The program generates excitement by wrapping powerful, community-wide science education programming around the experience. Team experiments, designed by middle school and high school classes, will be flown aboard Shuttle Endeavor with astronauts operating the experiments. The SSEP "early college" high school student finalists were all high school juniors (6 female, 2 male) (7 Hispanic, 1 Caucasian). The college student finalists were sophomores (2 female, 2 male) (3 Hispanic, 1 Caucasian),

NASA Education Priority - Enhance the capacity of institutions to support innovative research infrastructure activities to enable early career faculty to focus their research toward NASA priorities. ***Goal D - Research / New Investigator Program:*** TSGC provides research start-up funding of $10K, matched by the recipient's home institution, to two to five new faculty each year. These funds are awarded competitively to young investigators starting space-related research programs. In 2010 4 new Research grants were awarded, 2 in the amount of $9K and 2 in the amounts 10K each. (**Lamar University** *"Low-Power Radiation-Tolerant VLSI Design for Advanced Spacecraft"*(1 Male Asian*),* **University of Dallas** – *"STExTS Small Telescope Extrasolar Transit Searches"* (1 Male Caucasian*),* **University of North Texas** - "*Cryogenic Rankine*

Cycle to Revolutionize Space Based Power Generation" (1 Male, Caucasian) and **Texas A&M University**, *"Creating Smart Textiles from Polyelectrolyte Multilayers"* (1 Female, Caucasian)

Outcome 2 *(Educate and Engage)* – NASA Education Priority - Engage middle school teachers in hands-on curriculum enhancement capabilities through exposure to NASA scientific and technical expertise. Capabilities for teachers to provide authentic, hands-on middle school student experiences in science and engineering disciplines

Goal E - K-12 Education Program: TSGC's K-12 program focuses on teacher education to use the leverage of excited teachers to help fill the STEM pipeline. Since 1990, TSGC has conducted a weeklong summer teacher workshop, *LiftOff*, at NASA JSC. *LiftOff* emphasizes STEM learning experiences by incorporating a space science theme supported by NASA missions. Teacher participants are provided with information, materials, and experiences through hands-on activities and field trips. *Liftoff 2010*'s theme was "**Design a Space Mission**". 46 teachers attended the workshop (37 females, 9 males) (8 minorities, 37 Caucasian, 1 Pacific Islander). The teacher features (sharing of ideas among educator participants) and opportunities to interact with scientists and researchers dedicated to space missions are highlights for the educators attending. *LiftOff* Alumni Teachers also conducted trainings throughout Texas which reach approximately 2,000 teachers annually.

K-12 Higher Education Grants: TSGC provides smaller Higher Education grants in the amount of 15K, matched by the recipient's home institution, to two to five new faculty each year. These funds are awarded competitively to young investigators starting space-related research programs. In 2010 we awarded 3 new Research grants, in the amounts $15K each. (**UT Tyler** " *From Learning to Research: Space Based Remote Sensing for Teachers"* (1 Male, Caucasian); **Austin Planetarium**, "*Portable Planetarium Outreach Program"* (1 Male, Caucasian) and **UT Austin**, *"Supporting Teachers to Integrate Multimedia Technology in Teaching Space Science"* (1 female, disabled, Asian).

Teacher professional Development short term activities*:* As a result of TSGC's activities in STEM education, we are often contacted to conduct STEM activities for teachers. During the 2010-2011 grant year, we sponsored a booth at the National Science Teacher Association (NSTA) meeting. We conducted workshops at the NSTA meeting (100 participants), at the Conference for the Advancement of Science Teachers (35 participants), at the Space Exploration Educator Conference (65 participants), at the Texas Council for Elementary Science (50 participants), and at the Texas Regional Collaboratives for Science and Math (28 participants).

Outcome 3 *(Engage and Inspire)*

Goal F – Informal Education **-** Our goal in this area is to promote STEM education, increase public awareness of STEM initiatives and demonstrate program successes. We continue to collect "Success Stories" to highlight the activities and accomplishments of students and teachers that have participated in our programs. We have collected over 70

success stories to date. We maintain an extensive website (www.tsgc.utexas.edu) and have developed a TSGC fan Facebook page (http://www.facebook.com/pages/NASA-Texas-Space Grant/286095539201?v=wall) with over 450 fans to date. TSGC continues to host the "Ask-A-Scientist" link on the consortium website which answers space-related questions provided by teachers, students, and the general public. Questions come in daily. We provide interesting and engaging interactive educational space related experiences through the TSGC website and newsletter "Voyage to Spread Space Excitement" reaching 2,000 monthly. The TSGC website had 9500 unique visitors and 250,000 hits in 2010.

NASA Education Priority - Summer opportunities for secondary students on college campuses with the objective of increased enrollment in STEM disciplines or interest in STEM careers.

Student outreach STEM initiatives: TSGC participated in several elementary and high school programs both short term and long term in 2010. Below we list the name of the activity followed by the number of students impacted. A number without a word following it indicates students only. A number followed by "participants" indicates a mix of students, teachers, and parents; McNeil High School STEM Academy (50); Boy Scout Jamboree (75); Chisholm Trail Middle School (30); Bridgepoint Elementary Science Day Workshops (80); Brushy Creek Elementary Science Fair (50). Deer Creek Elementary Family Science Night (450 participants) Westside Elementary Science day (250); Steiner Ranch family science day (150 participants); Fern Bluff Elementary Science Night(400 participants); Earth Science Week Career Fair (350 participants); Expanding your Horizons (90); Eanes Elementary Science Day (40); *LiftOff* Teacher Student programs (6008 – the average of 182 per *LiftOff* teacher which is derived from follow up questionnaires to the teachers); Engaging Teachers and Students in Astronomy Edinburg TX (1,000 participants). In total, these activities reached more than 9000 students, teachers, and parents.

TSGC partners and collaborates with numerous organizations each year. By collaborating with these agencies we have trained informal educators, distributed materials to the general public, and conducted standards-based educational activities for students, parents, and the general public. In 2010, TSGC hosted and participated in the following informal education activities: Space Lecture (34), Austin Nature and Science Center Saturday (2,000 participants); Co-sponsored exhibit for the Earth Science Week Career Fair for (350 middle school students); Viewing Earth from Space Lecture (30); Bob Bullock State History Museum, (500 participants); Austin Nature and Science Center volunteer training (9); Texas Agri-life Extension Service (35 teachers); AmeriCorp (30 teachers); Extend-a-care (40 teachers). These activities reached more than 3000 individuals.

Goal G - Management and Infrastructure: TSGC's goal in this area is to manage program activities efficiently and at low cost. We review our strategic plan annually, seek external support, require matching from recipient institutions on many of our programs, and augment activities initiated by other groups whenever possible. We have a new

Associate Director for Texas Space Grant, Dr. Glenn Lightsey. He is actively involved at our Affiliate meetings, Board Meetings and programs.

PROGRAM CONTRIBUTIONS TO PART MEASURES

Student data and Longitudinal Tracking

2010-2011 Student Data and Longitudinal Tracking: Total awards = 169; Fellowship/Scholarship = 97, Higher Education/Research Infrastructure = 72; 40 of the total award represent underrepresented minority F/S funding. During the FY10 program year, 7 are pursuing advanced degrees in STEM disciplines, 2 accepted STEM positions at NASA contractors, 4 accepted STEM positions in industry, 1 accepted a STEM position in K-12 academia, 2 accepted STEM positions in academia, and 5 went on to positions in non-STEM disciplines. For all students that were significantly supported in the period spanning FY06-FY10, 34 are pursuing advanced degrees in STEM disciplines, 11 accepted STEM positions at NASA contractors, 3 accepted positions at NASA, 21 accepted STEM positions in industry, 2 accepted STEM positions in K-12 academia, 8 accepted STEM positions in academia, and 8 went on to positions in non-STEM disciplines. The remaining students have not yet received the degree that they were pursuing while the received their Space Grant award.

Course Development: UT Arlington has developed a new course titled *"Interdisciplinary Senior/Graduate Level Course in Multifunctional Smart Composite Space Structures"* from one of the 2010 Higher Education grants.

NASA Education Priority - Diversity of institutions, faculty, and student participants and Summer opportunities for secondary students on college campuses with the objective of increased enrollment in STEM disciplines or interest in STEM careers At a Middle School level, we collaborated with Citizens Schools, a nationwide organization that partners with middle schools to expand the learning day for children in low-income communities. We taught a 10 week course using NASA resources to minority students in the underrepresented Rio Grande Valley area of Texas.

Matching Funds: Texas Space grant solicits matching from participants in our Higher Education, Research (NIP) and K-12 proposal AOs we award. For example if we award a Research (NIP) proposals at 30 K, then their institution must match 30K match. We also receive affiliate in-kind match Board of Directors match from our other lead institutions, as well as affiliate membership dues cash match. In 2010, we were required to match $610,000 out of $845,000 budget. Our 2010 match commitment was over matched at $621,778.

Minority Serving Institution Collaborations: The MSI collaborations and improvements are highlighted on page 3 and 8.

IMPROVEMENTS MADE IN THE PAST YEAR

Scholarship and Fellowship Program; A pilot Educator STEM Scholarship was developed for teachers enrolled in programs to increase their competence in STEM disciplines. The pilot student STEM Scholarship program initiated last year has become a regular part of our scholarship programs. In addition, we see number of success stories increase each year.

Design Challenge Program; The Design Challenge Program continues to attract a larger level of involvement and participation from the NASA Johnson Space Center community. There has been increased communication and collaboration with the JSC Education Office with regard to placement of Design Challenge participants in JSC internship positions. Last semester, a member of a Design Challenge design team member received and internship offer. Opportunities for internship funding through ESMD should open up this avenue to a greater extent in the future. In addition, one of the program's long-time mentors was assigned as a NASA Administrator's Fellow at the University of Texas, San Antonio (UTSA) (MSI). His presence on campus energized UTSA's participation in the Design Challenge, resulting in a Top Design Team award for the UTSA team in in 2010. It is anticipated that the influence of his presence on this MSI campus will be long lasting.

NASA Education Priority - Diversity of institutions, faculty, and student participants and Enhance the capacity of institutions to support innovative research infrastructure activities to enable early career faculty to focus their research toward NASA priorities. Minority Participation - Proposals for our new MSIAC Development and Collaboration Enhancement Competition Program are currently being evaluated. This dedicated MSI funding is designed to enhance programs and increase participation at our MSIs. We are increasing awareness of our programs at our MSIs with onsite campus visits and presentations.

The TSGC Education and Outreach staff has supported programs and proposal efforts by affiliates and institutions that serve underrepresented, underserved populations. We collaborated with Rio Grande Valley Science Association to develop educational enrichment materials and activities for 48 Rio Grande Valley students as they traveled to Kennedy Space Center over the summer 2010 for the ***Minority Student Forum*** at Kennedy Space Center (46 females, 2 males - all Hispanic). Also, we collaborated with the Rio Grande Valley Science Association and The University of Texas – Pan American on a proposal for NASA STEM Education. The project, "**Engaging Teachers and Students in Astronomy and Earth and Space Science**" was funded. Participants in the first weeklong workshop report that the activities from the summer workshops were used with at least 100 elementary students, 500 middle grade students, and 400 high school students.

NASA Education Priority - Environmental Science and Global Climate Change – research and activities to better understand Earth's environments.

Global Climate Change Education Workshop - In 2010, TSGC hosted the *NASA Innovations in Global Climate Change Education Symposium in Austin.* Thirty organizations participated and many of these organizations continue to share ideas and collaborate on projects.

Research Infrastructure - Two additional research programs in the amount of 9K were awarded to faculty (listed in program accomplishments above).

Higher Education - One additional Higher Education proposals was awarded at $15k. (listed in program accomplishments above).

K-12 – One additional K-12 proposal was awarded at $15k. (listed in program accomplishments above)

PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

(MSIs are indicated by boldface type)

Four Year University Affiliates - 34

Angelo State University, Baylor University**,** Lamar University**, Prairie View A&M University,** Rice University**,** Southern Methodist University**, Sul Ross State University,** Tarleton State University**,** Texas A&M University**,** Texas A&M University Commerce**, Texas A&M University Corpus Christi, Texas A&M International University, Texas A&M University Kingsville,** Texas Christian University**, Texas Southern University, Texas State University – San Marcos,** Texas Tech University**,** Trinity University**,** University of Dallas, University of Houston**, University of Houston Downtown** , **University of Houston Clear Lake**, University of North Texas, **University of Texas Pan American,** University of Texas at Arlington**,** University of Texas at Austin**,** University of Texas at Dallas**, University of Texas El Paso,** UT Health Science Center Houston**,** UT Health Science Center San Antonio**,** UT Medical Branch Galveston**, University of Texas San Antonio**, UT Southwestern Medical Center, University of Texas at Tyler

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Community College Affiliates - 4

San Jacinto College, Houston Community College, Austin Community College, El Paso Community College

Industry / State / Non-profit Affiliates - 9

Austin Planetarium, Bob Bullock State History Museum, Don Harrington Discovery Center, Lockheed Martin, Office of the Governor, Southwest Research Institute, TX Higher Education Coordinating Board, United Space Alliance, University Space Research Association

Partnerships/Collaborations

New partnerships and collaborations in 2010 include UT Women in Engineering, Citizen Schools, GirlStart, and the Texas Girls Collaborative Project on T-STEM initiatives. TSGC received a mini-grant to train educators that will then offer Waterworks, an underwater robotics, summer camp to rising 9th grade students this summer. This program involves seven school districts in the Rio Grande Valley, Time Warner Cable Connect a Million Minds STEM initiative, and the International Museum of Art and Sciences. We continue our partnerships from previous years, including Johnson Space /USRA Career Exploration, LPI, and NASA.